

- 1) Given the points C(-7, 3) D(-3, 2) F(0, -4) and G(-4, -3)

A. Graph the points on the coordinate plane

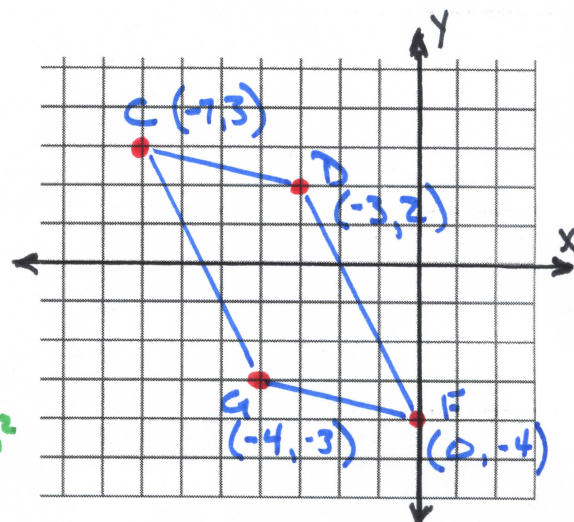
B. Use distance formula to find the lengths of the following sides:

$$\overline{CD} = \sqrt{(-3 - -7)^2 + (2 - 3)^2} = \sqrt{4^2 + (-1)^2}$$

$$= \sqrt{16 + 1} = \sqrt{17} \approx 4.123$$

$$\overline{FG} = \sqrt{(0 - -4)^2 + (-4 - -3)^2} = \sqrt{4^2 + (-1)^2}$$

$$= \sqrt{16 + 1} = \sqrt{17} \approx 4.123$$

C. Find the slope of the following sides to see if they are parallel  $\Rightarrow$  THEY ARE  $\parallel$ 

$$\overline{CD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 3}{-3 - -7} = \frac{-1}{4}$$

$$\overline{FG} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - -3}{0 - -4} = \frac{-1}{4}$$

- 2) Given the points C(-1, 1) D(2, 4) F(6, 4) and G(3, 1)

A. Graph the points on the coordinate plane

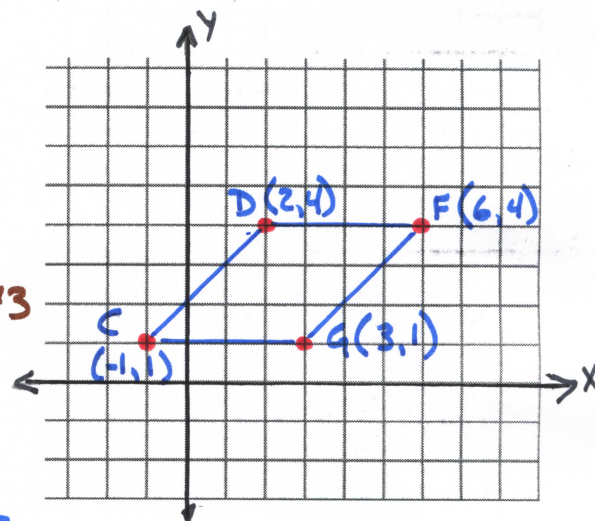
B. Use distance formula to find the lengths of the following sides:

$$\overline{CD} = \sqrt{(2 - -1)^2 + (4 - 1)^2} = \sqrt{3^2 + 3^2}$$

$$= \sqrt{9 + 9} = \sqrt{18} = 3\sqrt{2} \approx 4.243$$

$$\overline{FG} = \sqrt{(6 - 3)^2 + (4 - 1)^2} = \sqrt{3^2 + 3^2}$$

$$= \sqrt{9 + 9} = \sqrt{18} = 3\sqrt{2} \approx 4.243$$

C. Find the slope of the following sides to see if they are parallel  $\Rightarrow$  THEY ARE  $\parallel$ 

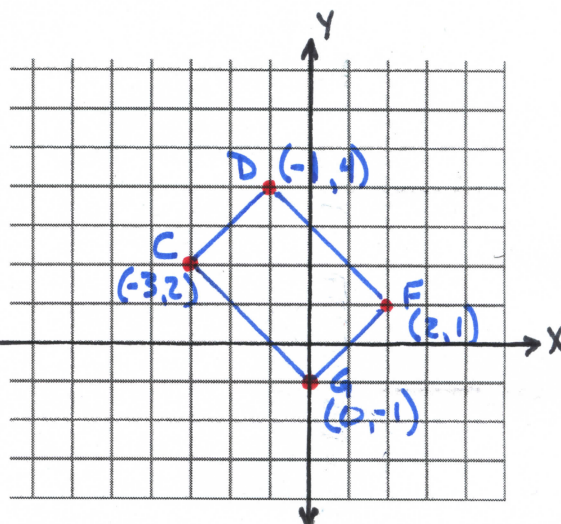
$$\overline{CD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 1}{2 - -1} = \frac{3}{3} = 1$$

$$\overline{FG} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 1}{6 - 3} = \frac{3}{3} = 1$$

- 3) Given the points C(-3, 2) D(-1, 4) F(2, 1) and G(0, -1)

A. Graph the points on the coordinate plane

B. Use distance formula to find the lengths of the following sides:



$$\begin{aligned}\overline{CD} &= \sqrt{(-1 - -3)^2 + (4 - 2)^2} = \sqrt{2^2 + 2^2} \\ &= \sqrt{4 + 4} = \sqrt{8} = 2\sqrt{2} \approx 2.828\end{aligned}$$

$$\begin{aligned}\overline{FG} &= \sqrt{(2 - 0)^2 + (1 - -1)^2} = \sqrt{2^2 + 2^2} \\ &= \sqrt{4 + 4} = \sqrt{8} = 2\sqrt{2} \approx 2.828\end{aligned}$$

$$\overline{CG} = \sqrt{(0 - -3)^2 + (-1 - 2)^2} = \sqrt{3^2 + (-3)^2} = \sqrt{9 + 9} = \sqrt{18} = 3\sqrt{2} \approx 4.243$$

$$\overline{FD} = \sqrt{(2 - -1)^2 + (1 - 4)^2} = \sqrt{3^2 + (-3)^2} = \sqrt{9 + 9} = \sqrt{18} = 3\sqrt{2} \approx 4.243$$

C. Find the slope of the following sides to see if they are parallel

$$\overline{CD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 2}{-1 - -3} = \frac{2}{2} = 1$$

$$\overline{FG} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - -1}{2 - 0} = \frac{2}{2} = 1$$

$$\overline{CG} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 2}{0 - -3} = \frac{-3}{3} = -1$$

$$\overline{FD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 4}{2 - -1} = \frac{-3}{3} = -1$$

$$\overline{CD} \parallel \overline{FG}$$

$$\overline{CG} \parallel \overline{FD}$$